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Alkaloids from Alphonsea elliptica barks and their biological activities

(Article)

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Abstract

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This study was carried out to investigate the phytochemicals from the barks of Alphonsea elliptica. The barks were harvested from Hutan Simpan Sembarong, Kluang, Johor; and extracted using dichloromethane (DCM), hexane and methanol successively. Isolation of dichloromethane crude extract was then performed using silica gel column chromatography and preparative thin layer chromatography (PTLC)techniques. Structural identification were carried out via 1D and 2D NMR, UV, IR, MS and comparison with reported data. Phytochemical study of the barks led tothe isolation of five alkaloid in which two were oxoaporphines; atherospermidine (1) and liriodenine (2),two were dioxoaporphines;cepharadione A (3) and N- methylouregidione (4), and an azafluorenone alkaloid;kinabaline (5). The hexane, DCM, and methanol crude extracts, together with five isolated alkaloids, were tested for theirradical scavenging activity,inhibition of xanthine oxidase activities and cytotoxicity. Atherospermidine and liriodenine possessed antioxidative activities with IC50 value of 20.17 and 10.73, respectively. Atherospermidine, liriodenine, N-methylouregidione and kinabaline showed xanthine oxidase inhibitiory activityof 46.29, 7.66, 42.10 and 50.72 μM,respectively. Meanwhile, atherospermidine, liriodenine, cepharadione A and kinabaline showed cytotoxicity against breast cancer cell line with IC50 89, 86, 79.85 and 62 μg/mL respectively. All the alkaloids tested in this study were isolated for the first time from this species while Cepharadione A is reported for the first time in a species belongs to Alphonsea genus.

SciVal Topic Prominence

Topic: Annonaceae | Alkaloids | chemical composition

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